

FORM PTO-1390 (Modified)  
(REV 11-98)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

SWA-002-US

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

09/830476

INTERNATIONAL APPLICATION NO.

PCT/CA99/01013

INTERNATIONAL FILING DATE

29 OCTOBER 1999

PRIORITY DATE CLAIMED

30 OCTOBER 1998

TITLE OF INVENTION

DIGITAL NETWORK MODEM AND CONFIGURATION SYSTEM FOR A DIGITAL NETWORK  
MODEM

APPLICANT(S) FOR DO/EO/US

MOINEAU, Gilbert; MAHER, Tom; O'HARA, Daniel

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
  - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☒ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ A copy of the International Search Report (PCT/ISA/210).
8. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

## Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☐ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ Certificate of Mailing by Express Mail
20. ☒ Other items or information:

Copy of the annexes to the IPER (seven (7) sheets comprising four (4) substitute sheets of amended claims (Article 34) and three (3) substitute sheets of specification amendments (Article 34))

Copy of the International Application as published (WO 00/27093)

White Advance Serial Number Postcard

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	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2
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**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

Signature: Laura D. Namm  
SIGNATURE

**CHESSEER, Wilburn L.; NAMMO, Laura D.**  
NAME

REGISTRATION NUMBER

DATE \_\_\_\_\_

DIGITAL NETWORK MODEM AND CONFIGURATION SYSTEM FOR A  
DIGITAL NETWORK MODEM

Field of the Invention

- 5 The present invention relates to a digital network modem, such as an ISDN or a DSL modem, and more particularly to a digital network modem having a modem address configuration system.

Background of the Invention

- 10 When installing new equipment to be connected to a network, such as a local area network (LAN), it is necessary to assign an (Internet protocol) IP network address to the new equipment, and a variety of methods for doing so are used. The most basic form of address management is to manually assign an IP address to the new equipment by directly setting or programming the network  
15 address at the new equipment using knowledge (i.e. a list) of IP addresses already used on the network, so as to be able to select a new and available address. The network manager or administrator is thus the "keeper" of the list of used addresses, and he or she is required to install any new equipment on the network. It is also common for the equipment to have a factory set IP address,  
20 and for the network administrator to use the factory address if it is within the range of usable addresses on the network, and it is not already assigned to a different device. If the factory set address is not compatible with the range of addresses used on the LAN, it is necessary to change the IP address of the new equipment.

- 25 To change the static IP address of new equipment to be compatible with the LAN requires an input interface. It is known to use a communications interface on the equipment to which a console can be connected to provide the input interface, and it is also known to use DIP switches on the equipment for setting

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the static address. These options either require considerable effort and/or extra equipment.

To facilitate the management of IP addresses in local area networks (LANs), it is known to provide servers called dynamic host configuration protocol or DHCP servers. These servers respond to requests from clients connected to the network to receive assigned dynamic IP addresses for communication purposes on the network. The advantage of using such a dynamic IP address assignment is that new clients can be added easily, and the effort to manage the addresses used on the network is reduced. In most cases, a DHCP server is provided by software added to a network server.

While DHCP can be adapted for use in assigning static IP addresses, it is often preferred to allow only the network administrator the ability to assign static addresses. Static IP addresses are required by certain types of equipment, usually network resource equipment, such as modems or servers.

When a network which was previously not connected to other networks or when a network needs a faster or additional connection to other networks, digital network modems are added to provide the desired connection. Network modems, such as ISDN modems, are assigned a static IP address on the LAN. When a DHCP server is provided on the LAN, clients on the LAN are assigned their IP addresses and can recognize the modem as a router or gateway by consulting the DHCP, and in this way, each client does not need to have prior knowledge of any fixed IP address for the modem.

Computer networks are being installed in more and more residential, office and industrial environments, and the increase in the number of such networks has increased the need for skilled technicians required to configure and maintain

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such networks. While computer networks were very uncommon a few years ago for home users, it is now economically feasible and desirable to interconnect computer devices in a home environment. Any simplification of the task of network management is important from the perspective of both increased reliability and reduced training for the network manager.

The article by Loucks W M et al entitled "Implementation Of A Dynamic Address Assignment Protocol In A Local Area Network" and published in 1986 describes an implementation of a dynamic address assignment protocol in a local area network using a nameserver for automatically assigning addresses to stations when the network is started.

An international patent application number WO 98 26548 to Archie L Cobbs and Jim Y Li describes a mechanism for an automatic configuration for an Internet access device using static and dynamic addresses.

#### Summary of the Invention

It is an object of the invention to provide in a digital network modem a mechanism for initializing a static IP address for the modem on the LAN via communication with a configuration station on the LAN.

According to the invention a network modem has an initialization control module for setting its static IP address remotely via the local network in response to a request by a configuration station. The configuration station sends a request on the local network to the modem to obtain identification and static IP address from the modem, receives a response from the modem and displays the static IP address, accepts user input to set the static IP address, and sends a request on the local network to the modem to set the static IP address. The system allows a user to set the static IP address for the modem, configure the modem settings, as well as the settings for the station. The system is easy to use and can work even if initial modem and configuration station communications parameters are incompatible.

The invention thus provides a network modem device configuration system connected to a modem via a local network, the system comprising a first module sending a request on the local network to the modem to obtain identification and static IP address from the modem, a second module receiving a response from the modem and displaying the static IP address, a third module accepting user input

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to set the static IP address, and a fourth module sending a request on the local network to the modem to set the static address. Preferably, the system further comprises a fifth module testing the static address on the network and, when the testing fails to validate operation of the static address for the modem, one of  
5 displaying an error message and prompting the user to input new data for the static address. Preferably, the first module sends a broadcast discover message on the local network to the modem on a specific IP port to solicit a response identifying the modem, the second module receives and decodes a response from the modem to obtain the identification and static IP address, and the fourth  
10 module broadcasts on the local network to the modem a message including the identification of the modem and an identification of the set static address.

Preferably, the system also comprises a parameter setting interface system allowing modem parameters to be set at the configuration system. The parameter  
15 setting interface system may include a save and restore mechanism allowing the modem parameters to be saved in storage external from the modem and restored to the modem from the storage. The parameter setting interface system is preferably provided by a web browser displaying pages requested from the modem, and the system advantageously comprises a sixth module for launching  
20 the web browser with an HTTP request addressed to the static address.

The configuration system according to the invention may be provided by software running in a client station connected to the local network. Therefore, the invention also provides a computer program product, as well as a method of  
25 transmitting a data signal which comprises a computer program executable in the client station for providing the configuration system according to the invention.

According to a further aspect of the present invention, there is provided a method for initializing a static IP address of a network modem device on a local network,  
30 comprising the steps of : broadcasting a request from a configuration station onto the local network; receiving a response to the request at the configuration station from the network modem device comprising an identification for the network modem device, the identification comprising at least an IP address for the network modem device; verifying a compatibility of the identification with  
35 settings for the local network; if the identification is compatible with the settings, send a confirmation message with the identification to the network modem device and receive a confirmation response from the network modem device; if the identification is not compatible with the settings, send a new address message

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comprising a new IP address for the network modem device, receive a change of IP response from the network modem device, send a new address confirmation message with the new IP address to the network modem device and receive a new address confirmation response from the network modem device.

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All aspects of the invention can be provided as computer code means which carried out the steps of the methods or which embody the system once loaded in the client computer, the computer code means being embodied either as a computer readable medium or as an electrical or electro-magnetical signal.

10

#### Brief Description of the Drawings

The invention will be better understood by way of the following detailed description of a preferred embodiment with reference to the appended drawings, in which:

- 15 Fig. 1 is a schematic block diagram of the LAN ISDN modem according to the preferred embodiment connected to a LAN to which a configuration station and a network DHCP server are also connected; and  
Fig. 2 is a flow chart illustrating the steps following in configuring and installing the modem using a configuration station.

20

#### Detailed Description of the Preferred Embodiment

- As illustrated in Fig. 1, the digital modem 10 according to the preferred embodiment is an ISDN modem having a plurality of functional components shown in Fig. 1. The separation of components illustrated in the separate blocks in Fig. 1 is for the purposes of illustration only, and does not necessarily reflect the physical separation of components in the real device which is built from both hardware and software/firmware components.

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30

In accordance with the present invention, the modem 10 may be installed in the network environment by assigning it an IP address either by direct connection or via the network. The address initializer module 14 provided in modem 10 communicates both with LAN interface 12 and a serial port in communication

with a console 15. The console 15 may be provided by a PC running a terminal program. The modem is preferably provided with a factory IP address (192.168.1.1) which is first tried. If the factory installed address is not usable, the following mechanism is used to install the modem 10 on the existing  
5 network where the IP addresses are already defined. In the prior art, the network IP address for the modem was communicated to the modem by using a console connected to the modem by a serial port, and thus the IP address for the modem was not set through the network (it is also known in the art to allow the IP address to be set in the factory, by keyboard input or by DIP switches).

10

The modem 10 must have a static IP address (i.e. a dynamic address from either DHCP server 28 or 16 is not to be used), and configuration station 24 is used in configuring the IP address for the modem 10 via the LAN 22. The configuration station 24 may have a static IP address or it may be a DHCP  
15 client and have a dynamic IP address. A system tray or modem monitor program 26 in the configuration station is used to assign modem 10 its static IP address.

In the preferred embodiment, modem 10 communicates with configuration  
20 station 24 either using HTML pages and an IP connection, or using menus with a terminal connection via LAN 22 or console 15.

As illustrated in Fig. 2, the steps involved in configuring modem 10 in the preferred embodiment can be described as follows. The modem 10 is connected  
25 to LAN 22 and powered on. The modem has a factory set static IP address, and initializer 14 is able to communicate either with station 24 or console 15 to receive a command to change its address. When the address change is done using the station 24, the modem monitor 26 is used to determine, confirm and

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set the static IP address in the modem 10 by communicating via LAN 22 with the initializer 14.

To communicate with modem 10 initially, the system tray 26 discovers the  
5 modem 10 by sending a broadcast packet on a predetermined proprietary port 1440. If modem 10 and the configuration station 24 are not on the same sub-net, the system tray 26 can ask modem 10 to change its address to be on the same sub-net. The system tray 26 thus sends a proprietary discovery user datagram protocol (UDP) broadcast message to a predetermined port, (e.g. the  
10 port chosen in the preferred embodiment is 1440, and thus the address is FF.FF.FF.FF:1440), which broadcast message is detected by initializer 14. In response to the broadcast, initializer 14 sends a reply broadcast message to port 1440, namely to address FF.FF.FF.FF:1440, including the MAC address of modem 10 in the packet. The modem monitor 26 then sends a broadcast packet  
15 to port 1440 including in the packet the MAC address of modem 10 along with the static IP address to be used. Initializer 14 recognizes its own MAC address in the packet broadcast from the system tray 26 and sets the IP address for the modem 10 to the address contained in the packet.

20 In selecting the IP address for modem 10, the configuration station is equipped with software, namely utility programs called Wizards, to help the user of station 24 install modem 10 by finding an available address for modem 10 on network 22. Such programs provide a list of all used static addresses, as well as the range of addresses reserved for dynamic allocation. The address for  
25 modem 10 must also be identified as a gateway or router and, in the preferred embodiment, as a domain name server (DNS) since modem 10 includes a DNS relay module 19. The system tray 26 has an interface allowing the network manager to enter an appropriate static IP address for the modem. The static address should be outside the range of DHCP addresses, or it should otherwise

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be reserved as a static address. If station 24 is a DHCP client and get its address from DHCP Server 16, the modem IP address can be assumed to be correct. However, in all cases, a ping message is sent by station 24 to the defined IP address before setting the modem's IP address to ensure that it is  
5 unique and valid. At this stage, the entered static IP address is validated.

The configuration station 24 may also require to have its network setting adjusted as a result of the installation of the modem onto the LAN 22. As illustrated in Fig. 2, when the station 24 is a DHCP client, and there is no  
10 DHCP server, it is necessary to enter a static address of the station 24, and the modem monitor 26 provides this interface. Likewise, changes to the DHCP status, DNS and subnet parameters, which are caused by the introduction of the modem 10 can be set using the settings interface provided by the modem monitor 26. The modem monitor can also obtain information about the  
15 network, such as the status of DHCP servers on the network, by requesting the modem 10 to carry out communications task on the LAN 22, which the station 24, configured conventionally, can have difficulty carrying out itself. In this way, the modem 10 is used as a network resource for helping the modem monitor 26 perform its functions.

20

Once the static address has been confirmed, the modem monitor launches a web-based configuration interface for allowing the network administrator to set the modem parameters. The web-based interface, namely a web browser, is launched to automatically initiate an HTTP request to the validated IP address  
25 of the modem. The modem parameters include the ISDN numbers, connection time parameters, external DNS addresses, activation of the internal DNS caching and listing functions, editing of the modem's DNS list, DHCP parameters for the built-in DHCP server 16, password data, etc. These parameters can optionally be saved at station 24 for back-up purposes, and the

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modem web-based configuration interface allows for both saving of these parameter to storage at station 24 as well as restoring of the parameters from storage at station 24.

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CLAIMS

1. A network modem device configuration system connected to a modem via a local network, the system comprising
- 5 a first module sending a request on said local network to said modem to obtain identification and static IP address data from said modem,
- a second module receiving a response from said modem and displaying said static IP address,
- a third module accepting user input to set said static IP address, and
- 10 a fourth module sending a request on said local network to said modem to set said static IP address.
2. The system according to claim 1, further comprising a fifth module testing said static address on said network and, when said testing fails to validate
- 15 operation of said static address for said modem, preventing said fourth module from sending the request on said local network to said modem to set said static IP address, and one of displaying an error message and prompting said user to input new data for said static address.
- 20 3. The system according to claim 1 or 2, wherein said first module sends a broadcast discover message on said local network to said modem to solicit a response identifying said modem, said second module receiving and decoding a response from said modem to obtain said identification and static IP address, and said fourth module broadcasts on said local network to said modem a message
- 25 including said identification of said modem and an identification of said set static address.
4. The system according to claim 2 or 3, wherein said broadcast message sent by said first and fourth modules, and received by said second module is
- 30 transmitted on a proprietary port.

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5. The system according to any one of claims 1 to 4, further comprising a parameter setting interface system allowing modem parameters to be set at said configuration system.

5 6. The system according to claim 5, wherein said parameter setting interface system includes a save and restore mechanism allowing said modem parameters to be saved in storage external from said modem and restored to said modem from said storage.

10 7. The system according to claim 5 or 6, wherein said parameter setting interface system is provided by a web browser displaying pages requested from said modem, said system further comprising a sixth module for launching said web browser with an HTTP request addressed to said static address.

15 8. The system according to claim 5, 6 or 7, wherein said modem is an ISDN modem, said modem parameters are selected from said group consisting of DHCP configuration settings, DNS settings, and ISDN connection settings.

20 9. The system according to any one of claims 1 to 8, wherein said system is a client station, further comprising a seventh module allowing a network configuration of said station to be set in consideration of changes to said local network due to an addition of said modem to said local network.

25 10. A computer program comprising code means which when loaded into said client station provides said system according to any one of claims 1 to 9, embodied on a computer readable medium.

30 11. A computer program comprising code means which when loaded into a client station provides the system according to any one of claims 1 to 9, embodied as an electrical or electro-magnetical signal.

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12. A method for initializing a static IP address of a network modem device on a local network, comprising the steps of:

broadcasting a request from a configuration station onto said local network;

5 receiving a response to said request at said configuration station from said network modem device comprising an identification for said network modem device, said identification comprising at least an IP address for said network modem device;

10 verifying a compatibility of said identification with settings for said local network;

if said identification is compatible with said settings, send a confirmation message with said identification to said network modem device and receive a confirmation response from said network modem device;

15 if said identification is not compatible with said settings, send a new address message comprising a new IP address for said network modem device, receive a change of IP response from said network modem device, send a new address confirmation message with said new IP address to said network modem device and receive a new address confirmation response from said network modem device.

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13. The method according to claim 12, wherein said request by said configuration station comprises a broadcast message, and said identification comprises an IP address, a MAC address and an internal DHCP server status for said network modem device.

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14. The method according to claim 13, wherein said messages from said configuration station and said responses from said modem are sent on a proprietary port.

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15. The method according to claim 13 or 14, wherein said modem further comprises an integrated DHCP server, and said message sent from said modem further includes an activation status of said DHCP server.
- 5 16. The method according to claim 15, wherein said modem automatically detects a presence of a network DHCP server on said local network and disables said integrated DHCP server when a network DHCP server is present on said local network.
- 10 17. The method according to any one of claims 12 to 16, wherein said device is a digital network modem.
18. The method according to claim 17, wherein said device is an ISDN modem.
- 15 19. The method according to any one of claims 12 to 18, further comprising a parameter setting interface system allowing modem parameters to be set by remote connection via said local network.
- 20 20. The method according to claim 19, wherein said interface system is provided by a web host mechanism.
21. The method according to claim 20, wherein said web host mechanism provides for saving said modem parameters to, and restoring said modem
- 25 parameters from, said remote connection.

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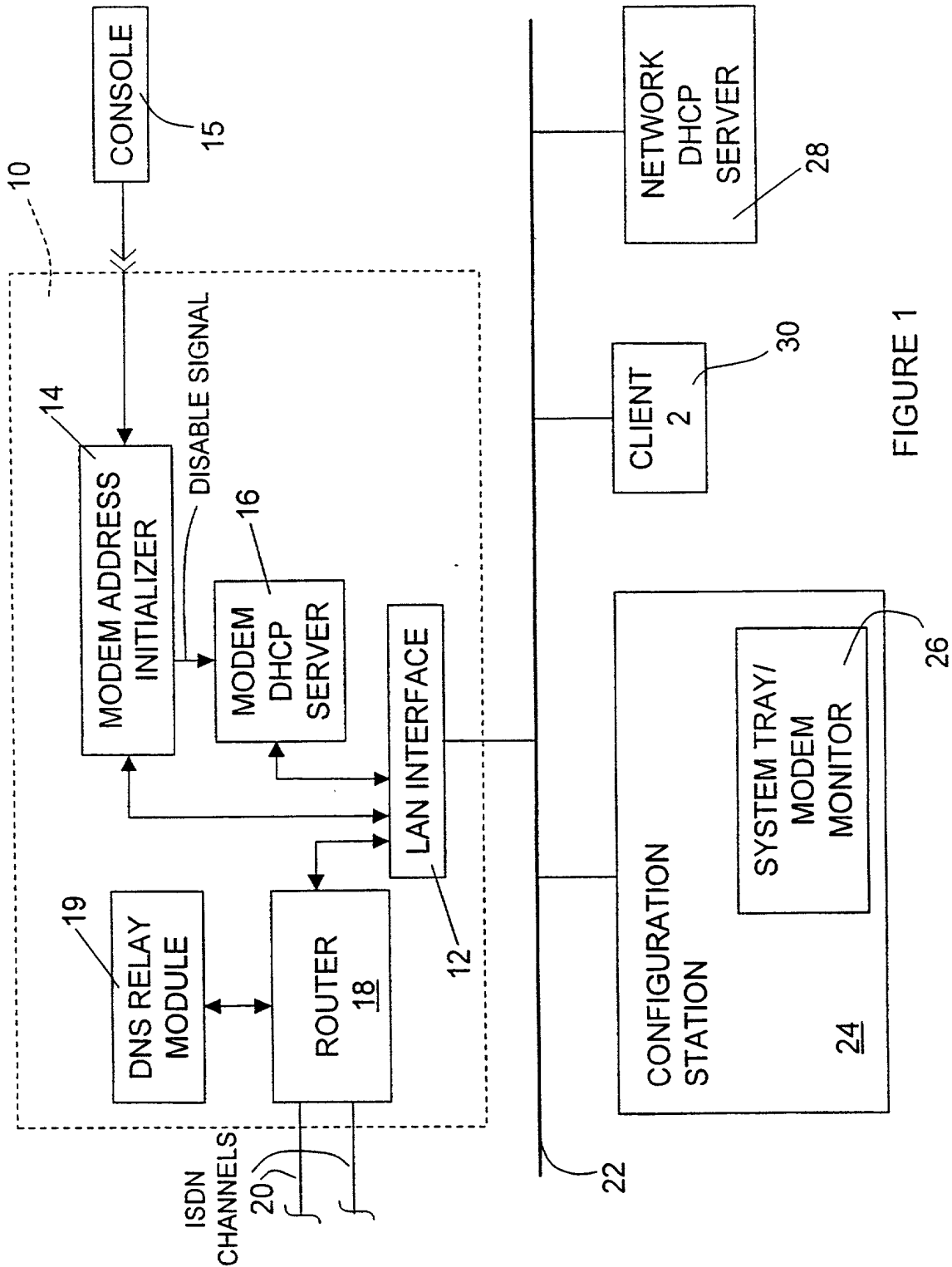


FIGURE 1



2/2

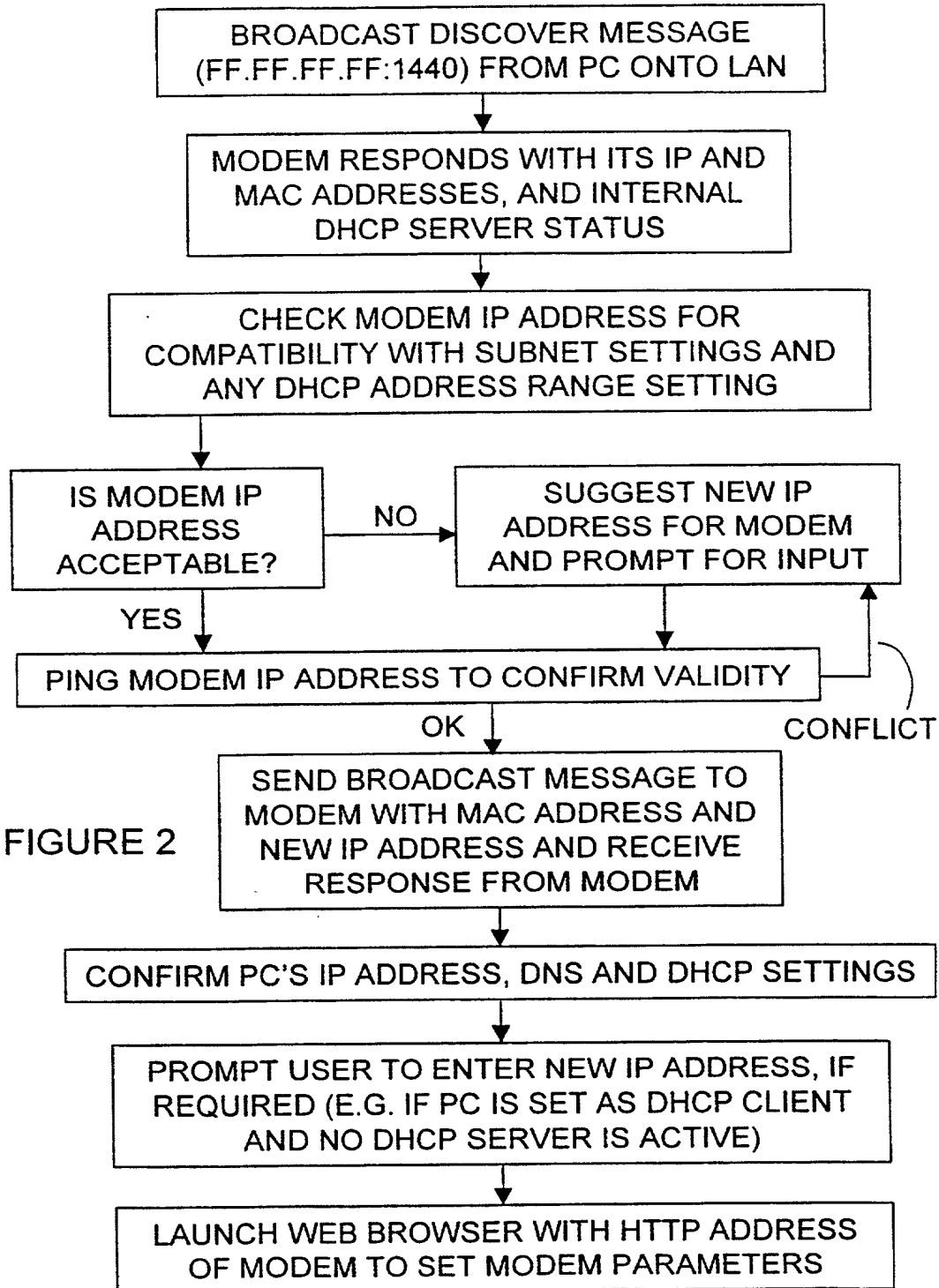


FIGURE 2

#4

# Declaration and Power of Attorney for Patent Application

## Déclaration et Pouvoir pour Demande de Brevet French Language Declaration

En tant qu'inventeur ci-après désigné, je déclare par la présente que:

Mon domicile, mon adresse postale et ma nationalité sont tels que figurant ci-dessous à côté de mon nom.

Je crois être le premier inventeur original et unique (si un seul nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet revendiqué, pour lequel une demande de brevet a été déposée concernant l'invention intitulée

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

### DIGITAL NETWORK MODEM AND CONFIGURATION SYSTEM FOR A DIGITAL NETWORK MODEM.

et dont le mémoire descriptif est ci-joint à moins que la case suivante n'ait été cochée:

- ☐ a été déposée le \_\_\_\_\_ sous le numéro de demande des États-Unis ou le numéro de demande internationale PCT \_\_\_\_\_ et modifiée le \_\_\_\_\_ (le cas échéant).

Je déclare par la présente avoir révisé et compris le contenu du mémoire descriptif ci-dessus mentionné, incluant les revendications, telles que modifiées par toute modification ci-dessus mentionnée.

Je reconnais devoir divulguer toute information pertinente à la brevetabilité, tel que défini dans le Titre 37, §1.56 du Code fédéral des réglementations.

Je revendique par la présente la priorité étrangère, en vertu du Titre 35, §119(a)-(d) ou §365(b) du Code des États-Unis, sur toute demande étrangère de brevet ou certificat d'inventeur ou, en vertu du Titre 35, §365(a) du même Code, sur toute demande internationale PCT désignant au moins un pays autre que les États-Unis et figurant ci-dessous et, en cochant la case, j'ai aussi indiqué ci-dessous toute demande étrangère de brevet, tout certificat d'inventeur ou toute demande internationale PCT

the specification of which is attached hereto unless the following box is checked:

- ☒ was filed on April 27, 2001 as United States Application Number 09/830,476 and/or PCT International Application Number PCT/CA99/01013 filed October 29, 1999 and was amended on January 4, 2001 (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations., §1.56.

I hereby claim foreign priority under Title 35, United States Code, §119(a)-(d) or §365 (b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States, listed below, and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application

09830476-103001

[illegible]

on which priority is claimed.

Priority Not Claimed  
Droit de priorité non revendiqué

30/10/1998 ☐  
(Day/Month/Year Filed)  
(Jour/Mois/Année de dépôt)

(Day/Month/Year Filed)  
(Jour/Mois/Année de dépôt)

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below.

(Filing Date)  
(Date de dépôt)

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s), or §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

(Status) (patented, pending, abandoned)  
(Statut) (breveté, en cours d'examen, abandonné)

(Status) (patented, pending, abandoned)  
(Statut) (breveté, en cours d'examen, abandonné)

# French Language Declaration

Je déclare que toute les déclarations faites dans la présente sont à ma connaissance, véridiques et que toutes les déclarations faites à partir de renseignements ou de suppositions sont venues pour véridiques; et de plus, que toutes ces déclarations ont été faites en sachant que toute fausse déclaration volontaire ou son équivalent est passible d'une amende ou d'une peine d'emprisonnement, ou des deux, en vertu de la Section 1001 du Titre 18 du Code des États-Unis, et que de telles déclarations volontairement fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celle-ci.

POUVOIR: En tant qu'inventeur désigné, Je nomme par la présente l'(les) avocat(s) et/ou agent(s) suivant(s), avec plein pouvoir de révocation et de substitution, chargés de poursuivre cette demande et de traiter toute affaire s'y rapportant avec l'Office des brevets et des marques: (mentionner le nom et le numéro d'enregistrement).

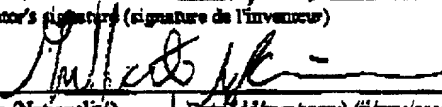
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following agents and/or attorneys, with full power of substitution, association, and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: (list name and registration number)

STEVEN B. KEBLER, Reg. No. 30,973; MARC R. LABGOLD, Ph.D., Reg. No. 34,651; PAUL C. KIMBALL, Reg. No. 34,641; LAURA A. DONNELLY, Reg. No. 38,435; WILBURN L. CHESSER, reg. No. 41,668; SCOTT D. EADS, reg. No. 41,726; JAMES M. HEINTZ, Reg. No. 41,828; LAURA D. NAMMO, Reg. No. 42,024; AMY L. MILLER, Reg. No. 43,804; CHRISTOPHER W. RAIMUND, Reg. No. 47,258 and JAMES ANGLEHART, Registration No. 38,796; MAX R. WOOD (Reg. No. 40,388), ROBERT MITCHELL, Registration No. 25,007, GUY HOULE, Registration No. 24,971, PAUL MARCOUX, Registration No. 24,990, KEVIN P. MURPHY, Registration No. 26,674; ROBERT CARRIER, Registration No. 30,726; MICHEL J. SOFIA, Registration No. 37,017; FRANCE CÔTÉ, Registration No. 37,037; and CHRISTIAN CAWTHORN, Registration No. 47,352.

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**PIPER MARBURY RUDNICK & WOLFE, LLP**  
1200 Nineteenth Street, NW  
Washington, DC 20036-2412  
USA

1-00	Full name of sole or first inventor (Nom complet de l'unique ou premier inventeur) <b>Gilbert MOINEAU</b>	Citizenship (Nationalité) <b>Canadian</b>	Date (dd/mm/yyyy) (jj/mm/aaaa) <b>20/09/2001</b>
	Residence and Post Office address (Domicile et adresse postale) <b>3255 Dalbé-Viau Street, Lachine, Quebec, CANADA H8T 3N3</b> <i>CAX</i>	Inventor's signature (signature de l'inventeur) 	
2-00	Full name of second inventor (Nom complet du second co-inventeur) <b>Tom MAHER</b>	Citizenship (Nationalité) <b>Irish</b>	Date (dd/mm/yyyy) (jj/mm/aaaa)
	Residence and Post Office address (Domicile et adresse postale) <b>4 Glencain Chase, 18 Dublin, IRELAND</b> <i>IEX</i>	Second Inventor's signature (signature du second inventeur)	
3-00	Full name of third co-inventor (Nom complet du troisième co-inventeur) <b>Daniel O'HARA</b>	Citizenship (Nationalité) <b>Irish</b>	Date (dd/mm/yyyy) (jj/mm/aaaa)
	Residence and Post Office address (Domicile et adresse postale) <b>44 Auburn Drive, Castleknock, 15 Dublin, IRELAND</b> <i>IEX</i>	Third Inventor's signature (signature du troisième inventeur)	

# French Language Declaration

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Washington, DC 20036-2412  
USA

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Residence and Post Office address (Domicile et adresse postale) <b>3255 Dalbé-Viau Street, Lachine, Quebec, CANADA H8T 3N3</b>	Inventor's signature (signature de l'inventeur)	
Full name of second inventor (Nom complet du second co-inventeur) <b>Tom MAHER</b>	Citizenship (Nationalité) <b>Irish</b>	Date (dd/mm/yyyy) (jj/mm/aaaa) <b>25/07/2001</b>
Residence and Post Office address (Domicile et adresse postale) <b>4 Glencairn Chase, Sandford, 18 Dublin, IRELAND IEX</b>	Second Inventor's signature (signature du second inventeur) <i>Thomas Maher</i>	
Full name of third co-inventor (Nom complet du troisième co-inventeur) <b>Daniel O'HARA</b>	Citizenship (Nationalité) <b>Irish</b>	Date (dd/mm/yyyy) (jj/mm/aaaa)
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Full name of third co-inventor (Nom complet du troisième co-inventeur) <b>Daniel O'HARA</b>	Citizenship (Nationalité) <b>Irish</b>	Date (dd/mm/yyyy) (jj/mm/aaaa) <b>1/10/2001</b>
Residence and Post Office address (Domicile et adresse postale) <b>44 Auburn Drive, Castleknock, 15 Dublin, IRELAND</b>	Third Inventor's signature (signature du troisième inventeur) <i>[Signature]</i>	